In the Claims:

1. (Withdrawn) A method of monitoring consciousness of a sentient subject and automatically detecting whether the subject is in a transition from a conscious state to a less conscious state or vice versa, by reducing effects of frequency based changes in neurological data from the subject, said method comprising: (i) obtaining an EEG signal from the subject; (ii) performing a frequency based analysis of the EEG signal to obtain a frequency-based signal; (iii) performing a phase based analysis of the EEG signal to obtain a phase-based signal ; (iv) detecting by comparing the frequency based signal and the phase based signal whether the subject is in transition from said conscious state to said less conscious state or vice versa; and (v) providing a warning signal when said subject is in said transition to said conscious state.

2. (Withdrawn) The method according to claim 1 wherein said frequency based analysis includes depth of sleep analysis and said phase-based analysis includes at least one of optimized bicoherence, bispectrum or triple product analysis.

3. (Withdrawn) The method according to claim 2 wherein said depth of sleep analysis includes real-time optimized R&K analysis.

4. (Withdrawn) The method according to claim 1 wherein said step of detecting is augmented with optimized AEP analysis.

5. (Withdrawn) The method according to claim 1 further comprising a means for adapting to parameters specific to said subject including body mass index, age and sex of said subject.

6. (Withdrawn) A method of processing a non-stationary signal including segments having increasing and decreasing amplitude representing physiological characteristics of a sentient subject, said segments including portions in which said signal changes from increasing to decreasing amplitude or vice versa, said method comprising: (i) detecting each segment by determining time instants when a time derivative of said signal is substantially equal to zero; (ii) performing syntactic analysis for each segment including assigning height, width and error parameters; (iii) identifying noise segments present in said signal by comparing said width

parameter to a preset threshold and said error parameter to said height parameter; (iv) removing said noise segments by replacing each identified noise segment with a substantially straight line; (v) sorting the remaining segments into a plurality of wavebands based on their width parameters; and (vi) classifying said signal as belonging to one of predefined sleep states based on relative frequency of occurrence of said segments in said wavebands.

7. (Withdrawn) A method of monitoring physiological characteristics of a sentient subject comprising: applying a first surface electrode to said subject to provide a first electrical signal to a remote monitoring apparatus; applying a second surface electrode to said subject to provide a second electrical signal to said remote monitoring apparatus; monitoring quality of said first electrical signal; in the event of a degradation in said quality of first signal, automatically substituting said second electrical signal for said first electrical signal; in the event of a degradation in said quality of said second electrical signal and in said quality of said first electrical signal, providing a warning signal.

8. (Withdrawn) The method according to claim 7 wherein said second electrode is spaced from said first electrode.

9. (Withdrawn) An apparatus for processing a non-stationary signal including segments having increasing and decreasing amplitude representing physiological characteristics of a sentient subject, said segments including portions in which said signal changes from increasing to decreasing amplitude or vice versa, said apparatus comprising: (i) means for detecting each segment by determining time instants when a time derivative of said signal is substantially equal to zero; (ii) means for dividing said signal into said segments including data over three consecutive time instants when said time derivative is equal to zero; (iii) means for assigning to each segment, height, width and error parameters; (iv) means for identifying noise segments in said signal including means for comparing for each segment said width parameter to a preset threshold and said error parameter to said height parameter; (v) means for removing said noise segments including means for substituting a straight line connecting first and third time instants when the time derivative of said signal is substantially equal to zero and means for reassigning segments and their parameters after the substitution; (vi) means for sorting the remaining segments into a plurality of wave bands based on the value of their width parameter, each wave

band being defined by upper and lower frequencies corresponding to lower and upper values for the width parameter respectively; and (vii) means for classifying a time interval of the signal data as belonging to one of predefined sleep states based on relative frequency of occurrence of said segments in said wave bands.

10. (Withdrawn) The apparatus according to claim 9 wherein said time derivative is equal to zero when said signal changes its direction from positive to negative or from negative to positive.

11. (Withdrawn) The apparatus according to claim 9 wherein each height parameter is assigned by calculating an average of the signal's variations between the first and second time instants when the time derivative of said signal is substantially equal to zero, and the second and third time instants when the time derivative of said signal is substantially equal to zero.

12. (Withdrawn) The apparatus according to claim 9 wherein each width parameter is assigned by calculating an average time interval between any data point within the segment and a second time instant when the time derivative of said signal is substantially equal to zero, said intervals being weighted according to the signal's variation between each respective data point and an adjacent data point nearest to the second time instant when the time derivative of said signal is substantially equal to zero.

13. (Withdrawn) The apparatus according to claim 9 wherein said error parameter is assigned by calculating an average deviation between current signal data and past signal data over a signal time interval.

14. (Withdrawn) The apparatus according to claim 9 wherein said means for identifying noise segments includes means for testing each segment to determine if its width parameter is less than said preset threshold and its error parameter is less than its height parameter by at least a preset ratio.

15. (Withdrawn) The apparatus according to claim 9 wherein said means for reassigning repeats a procedure of reassigning segments and their parameters and said means for substituting performs a substitution until no noise segments are identified in said signal.

16. (Withdrawn) The apparatus according to claim 9 wherein said means for classifying includes means for comparing to a preset threshold values of weighted combinations of occurrences of said segments in said wavebands.

17. (Withdrawn) The apparatus according to claim 9 including means for detecting and processing artefact patterns in said signal, including one or more of: means for detecting flat intervals in said signal; means for detecting intervals in said signal having a relatively sharp slope, being intervals in which variation in said signal exceeds a first threshold over a time interval equal to or shorter than a second threshold; means for detecting intervals in said signal having a relatively narrow peak, being intervals in which the width parameter is equal to or less than a third threshold and the height parameter is equal to or greater than a fourth threshold; and means for detecting other non-physiological pattern in said signal, being combinations of segments having a width and height of one, the segments in the combination being less than the respective total duration and signal variation of the combination by at least preset ratios.

18. (Withdrawn) The apparatus according to claim 9 including means for detecting and processing wave patterns characterized by minimum amplitude and minimum and maximum durations, including: means for detecting a core interval of the wave pattern as a sequence of one or more segments which starts at a first time instant of a first segment when a time derivative of said signal is substantially equal to zero and ends at a second time instant of the last segment when a time derivative of said signal is substantially equal to zero, or starts at the second time instant of the first segment when the time derivative of said signal is substantially equal to zero and ends at a third time instant of the last segment when the time derivative of said signal is substantially equal to zero, with the total signal variation of at least the minimum amplitude, duration of at least a preset share of the minimum duration, less than the maximum duration and the maximum deviation from a monotonous change of at least a preset share of the total variation.

19. (Withdrawn) The apparatus according to claim 9 including means for detecting a start and end of a main wave of the wave pattern by subsequent comparison with a preset threshold of a deviation of the slope of respective components of segments preceding and following the core interval from the slope of the core interval, and means for updating the core

interval if the deviation of the slope and maximum deviation from the monotonous change do not exceed respective preset thresholds, and a total updated duration is equal to at least a preset share of the minimum duration and is less than the maximum duration.

20. (Withdrawn) The apparatus according to claim 19 including means for detecting one or two side waves of the wave pattern by subsequent testing of sequences of combinations of segments preceding and following the main wave for the signal duration conditions.

21. (Withdrawn) The apparatus according to claim 9 wherein said means for sorting into a plurality of wave bands is based on the detected wave patterns.

22. (Withdrawn) The apparatus according to claim 9 wherein said means for classifying includes means for comparing to preset threshold values of weighted combinations of occurrences of said segments in said wave bands, artefact patterns and wave patterns.

23. (Withdrawn) The apparatus according to claim 9 including means for detecting periodic patterns with specified minimum and maximum frequencies, minimum amplitude and minimum number of waves including: means for selecting combinations of a specified number of segments; means or an assigning component for assigning for each combination, an average, minimum and maximum amplitude and an average, minimum and maximum period; means for testing if the average amplitude exceeds a specified minimum amplitude for a periodic pattern; means for testing if the maximum amplitude exceeds the minimum amplitude by not more than a specified ratio; means for testing if the frequency corresponding to the average period is equal to or greater than the minimum frequency of the periodic pattern and is equal to or less than the maximum frequency of the periodic pattern; means for testing if the maximum period for a combination of segments exceeds the minimum period by not more than a specified ratio; means for joining combinations of segments, which comply with the above criteria; and means for classifying a time interval of the signal data as belonging to one of predefined states on the basis of a comparison of the value of a weighted combination of durations of a plurality of wave bands, artefact patterns and wave patterns with a threshold which is set to a different value depending on the total relative duration of periodic patterns within the time interval.

24. (Withdrawn) The apparatus according to claim 10 including means for classifying a time interval of the signal data as belonging to one of predefined states on the basis of a comparison of the value of a weighted combination of durations of a plurality of wave bands, artefact patterns and wave patterns with a decision boundary which is set to a different value depending on the total relative duration of periodic patterns within the time interval, if the difference between the value and the decision boundary is equal to or greater than a specified margin, or otherwise, on the basis of a comparison of this value with the respective value for the preceding or following time interval providing that that interval is already classified and the difference between the respective values is equal or less than the specified margin, or otherwise, if after subsequent passes through the data, an interval is still not resolved, on the basis of comparison of this value with a threshold which is set to a different value depending on the total relative duration of periodic patterns within the time interval.

25. (Withdrawn) A sensor for detecting position of an eye lid comprising: first means adapted to move substantially with said eye lid and relative to a reference component; and means for providing an electrical signal indicative of the position of said first means relative to said reference component, such that said signal includes a measure of position and/or degree of opening of said eye lid.

26. (Withdrawn) The sensor according to claim 25 wherein said first means and said reference component are electrically coupled such that said coupling provides said measure of position and/or degree of opening of said eye lid.

27. (Withdrawn) The sensor according to claim 25 wherein said first means and said reference component are provided by respective arms connected for relative movement.

28. (Withdrawn) The sensor according to claim 27 wherein said arms are pivotably connected to each other.

29. (Withdrawn) The sensor according to claim 27 wherein each arm includes a capacitive element arranged such that the extent of overlap between the arms determines the coupling between the capacitive elements.

30. (Withdrawn) The sensor according to claim 29 wherein each capacitive element includes one plate of a capacitor.

31. (Withdrawn) The sensor according to claim 29 including means for measuring capacitance between said capacitive elements.

32. (Withdrawn) A sensor according to claim 27 wherein each arm includes an inductive element arranged such that the extent of overlap between the arms determines the coupling between the inductive elements.

33. (Withdrawn) A sensor according to claim 31 wherein each inductive element include a coil.

34. (Withdrawn) A sensor according to claim 32 including means for measuring inductive coupling between said inductive elements.

35. (Withdrawn) Apparatus for processing a non-stationary signal including segments having increasing and decreasing amplitude representing physiological characteristics of a sentient subject, said segments including portions in which said signal changes from increasing to decreasing amplitude or vice versa, said apparatus including:

(i) a detector which detects each segment by determining time instants when a time derivative of said signal is substantially equal to zero;

(ii) a divider which dividing said signal into said segments including data over three consecutive time instants when said time derivative is equal to zero;

(iii) an assigning component which assigns to each segment, height, width and error parameters;

(iv) an identifier which identifies noise segments in said signal including a comparing component which compares which each segment said width parameter to a preset threshold and said error parameter to said height parameter;

(v) a removing component which removes said noise segments including a substituting component which substitutes a straight line connecting first and third time instants when the time derivative of said signal is substantially equal to zero and a reassigning component which reassigning segments and their parameters after the substitution;

(vi) a sorter which sorts the remaining segments into a plurality of wave bands based on the value of their width parameter, each wave band being defined by upper and lower frequencies corresponding to lower and upper values which the width parameter respectively; and

(vii) a classifier which classifies a time interval of the signal data as belonging to one of predefined sleep states based on relative frequency of occurrence of said segments in said wave bands.

36. (Withdrawn) The apparatus according to claim 35 wherein said identifying component includes a testing component which tests each segment to determine if its width parameter is less than said preset threshold and its error parameter is less than its height parameter by at least a preset ratio.

37. (Withdrawn) The apparatus according to claim 35 wherein said reassigning component repeats a procedure of reassigning segments and their parameters and said substituting component performs a substitution until no noise segments are identified in said signal.

38. (Withdrawn) The apparatus according to claim 35 wherein said classifying component includes a comparing component which compares to a preset threshold values of weighted combinations of occurrences of said segments in said wavebands.

39. (Withdrawn) The apparatus according to claim 35 including a first detecting and processing component which detects and processes artefact patterns in said signal, including one or more of:

a second detector which detects flat intervals in said signal;

a third detector which detects intervals in said signal having a relatively sharp slope, being intervals in which variation in said signal exceeds a first threshold over a time interval equal to or shorter than a second threshold;

a fourth detector which detects intervals in said signal having a relatively narrow peak, being intervals in which the width parameter is equal to or less than a third threshold and the height parameter is equal to or greater than a fourth threshold; and

a fifth detector which detects other non-physiological pattern in said signal, being combinations of segments having a width and height of one, the segments in the combination being less than the respective total duration and signal variation of the combination by at least preset ratios.

40. (Withdrawn) The apparatus according to claim 39 including a sixth detector and processing component which detects and processes wave patterns characterized by minimum amplitude and minimum and maximum durations, including:

a seventh detector which detects a core interval of the wave pattern as a sequence of one or more segments which starts at a first time instant of a first segment when a time derivative of said signal is substantially equal to zero and ends at a second time instant of the last segment when a time derivative of said signal is substantially equal to zero, or starts at the second time instant of the first segment when the time derivative of said signal is substantially equal to zero and ends at a third time instant of the last segment when the time derivative of said signal is substantially equal to zero, with the total signal variation of at least the minimum amplitude, duration of at least a preset share of the minimum duration, less than the maximum duration and the maximum deviation from a monotonous change of at least a preset share of the total variation.

41. (Withdrawn) The apparatus according to claim 40 including an eighth detector which detects a start and end of a main wave of the wave pattern by subsequent comparison with a preset threshold of a deviation of the slope of respective components of segments preceding and following the core interval from the slope of the core interval, and an updating component which updating the core interval if the deviation of the slope and maximum deviation from the

monotonous change do not exceed respective preset thresholds, and a total updated duration is equal to at least a preset share of the minimum duration and is less than the maximum duration.

42. (Withdrawn) The apparatus according to claim 41 including a ninth detector which detects one or two side waves of the wave pattern by subsequent testing of sequences of combinations of segments preceding and following the main wave which the signal duration conditions.

43. (Withdrawn) The apparatus according to claim 35 wherein said sorter receives detected wave patterns.

43. (Withdrawn) The apparatus according to claim 35 wherein said classifier includes a component which compares to preset threshold values of weighted combinations of occurrences of said segments in wave bands, artefact patterns and wave patterns.

44. (Withdrawn) The apparatus according to claim 42 including a tenth detector which detects periodic patterns with specified minimum and maximum frequencies, minimum amplitude and minimum number of waves including:

a selecting component which selects combinations of a specified number of segments;

an assigning component which assigning for each combination, an average, minimum and maximum amplitude and an average, minimum and maximum period;

a first testing component which tests if the average amplitude exceeds a specified minimum amplitude for a periodic pattern;

a second testing component which tests if the maximum amplitude exceeds the minimum amplitude by not more than a specified ratio;

a third testing component which tests if the frequency corresponding to the average period is equal to or greater than the minimum frequency of the periodic pattern and is equal to or less than the maximum frequency of the periodic pattern;

a fourth testing component which tests if the maximum period for a combination of segments exceeds the minimum period by not more than a specified ratio;

a joining component which joins combinations of segments, which comply with the above criteria; and

a first classifying component which classifies a time interval of the signal data as belonging to one of predefined states on the basis of a comparison of the value of a weighted combination of durations of a plurality of wave bands, artefact patterns and wave patterns with a threshold which is set to a different value depending on the total relative duration of periodic patterns within the time interval.

45. (Withdrawn) The apparatus according to claim 44 including a second classifying component which classifies a time interval of the signal data as belonging to one of predefined states on the basis of a comparison of the value of a weighted combination of durations of a plurality of wave bands, artefact patterns and wave patterns with a decision boundary which is set to a different value depending on the total relative duration of periodic patterns within the time interval, if the difference between the value and the decision boundary is equal to or greater than a specified margin, or otherwise, on the basis of a comparison of this value with the respective value for the preceding or following time interval providing that that interval is already classified and the difference between the respective values is equal or less than the specified margin, or otherwise, if after subsequent passes through the data, an interval is still not resolved, on the basis of comparison of this value with a threshold which is set to a different value depending on the total relative duration of periodic patterns within the time interval.

46. (Withdrawn) A sensor which detecting position of an eye lid including:

a movable component adapted to move substantially with said eye lid and relative to a reference component; and

a signal providing component which providing an electrical signal indicative of the position of said movable component relative to said reference component, such that said signal includes a measure of position and/or degree of opening of said eyelid.

47. (Withdrawn) The sensor according to claim 46 wherein said movable component and said reference component are provided by respective arms connected for relative movement.

48. (Withdrawn) The sensor according to claim 47 wherein said arms are pivotably connected to each other.

49. (Withdrawn) The sensor according to claim 47 wherein each arm includes a capacitive element arranged such that the extent of overlap between the arms determines the coupling between the capacitive elements.

50. (Withdrawn) The sensor according to claim 49 wherein each capacitive element includes one plate of a capacitor.

51. (Withdrawn) The sensor according to claim 49 including a measuring component which measures the capacitance between said capacitive elements.

52. (Withdrawn) A sensor according to claim 47 wherein each arm includes an inductive element arranged such that the extent of overlap between the arms determines the coupling between the inductive elements.

53. (Withdrawn) A sensor according to claim 52 wherein each inductive element include a coil.

54. (Withdrawn) A sensor according to claim 53 including a measuring component which measures the inductive coupling between said inductive elements.

55. (Currently Amended) Apparatus for acquiring physiological data from a living being for determining the state of sleep-consciousness of said living being comprising:

means for acquiring at least one continuous biosignal of said being ~~using at least one sensor~~;

means for stimulating at least one evoked potential signal in said being;

means for acquiring ~~said~~ at least one evoked potential signal from said being ~~using at least one sensor~~; and

means for calculating ~~an index from each acquired biosignal and selecting an index from the calculated indices to represent the state of consciousness from the living being~~ at least two indices from each acquired biosignal and selecting an index from said at least two calculated indices to represent the state of consciousness of the living being wherein a first of said at least two indices is derived from a transformation of raw signal data according to a first transformation method and the second and subsequent of said at least two indices is derived from a transformation of raw signal data according to a transformation method different from said first transformation method; ~~an index from each acquired biosignal and selecting an index from the calculated indices to represent the state of consciousness from the living being~~

wherein said means for acquiring ~~at least one continuous biosignal and said means for acquiring said at least one evoked potential signal~~ said biosignal and said means for acquiring at least one evoked signal utilize a common sensor means.

56. (previously presented) The apparatus according to claim 55 wherein the at least one biosignal is an EEG signal or a muscular activation signal or both.

57. (previously presented) The apparatus according to claim 56 wherein the muscular activation signal is a measure of eyelid movement.

58. (previously presented) The apparatus according to claim 56 wherein the EEG signal is a continuous signal.

59. (previously presented) The apparatus according to claim 56 including means for deriving said evoked potential signal from the EEG signal.

60. (previously presented) The apparatus according to any one of claim 55 wherein the means for acquiring the at least one continuous biosignal or means for acquiring the at least one evoked potential signal includes at least one electrode sensor.

61. (currently amended) The apparatus according to claim 55 including means for monitoring signals for signal ~~integrity~~ quality.

62. (previously presented) The apparatus according to claim 55 including means for monitoring signals for signal quality.

63. (previously presented) The apparatus according to claim 55 wherein the means for acquiring the at least one continuous biosignal or means for acquiring the at least one evoked potential signal includes at least one disposable or semi-disposable sensor.

64. (previously presented) The apparatus according to claim 63 wherein said at least one disposable or semi-disposable sensor includes means for activating an electrical energy source.

65. (previously presented) The apparatus according to claim 64 wherein the means for activating said energy source includes the packaging of said electrical energy source.

66. (previously presented) The apparatus according to claim 55 wherein the means to acquire the at least one biosignal is an electrode sensor activatable in response to pressure from an operator or user of said apparatus.

67. (previously presented) The apparatus according to claim 55 wherein the means for stimulating the evoked potential signal stimulates any one or a combination of somatosensory, auditory, or visual evoked response.

68. (Currently amended) The apparatus according to claim 67 wherein the means for stimulating said auditory evoked response signal is a ~~cochlear microphone~~ ear piece.

69. (previously presented) The apparatus according to claim 68 whereby said auditory means induces a steady state response signal or any combination of signals inducing associated auditory evoked response or responses classified as the following either singly or in combination greater than: 60 Hz ASSR, 40 Hz ASSR, or less than 20 Hz ASSR.

70. (previously presented) The apparatus according to claim 55 including means for displaying the functional or operational status of any sensor.

71. (previously presented) The apparatus according to claim 55 wherein the means for inducing an auditory evoked potential response signal includes means for producing any one of or a combination of evoked response paradigms including:

at least one type of click stimulus;

at least one response at spaced intervals within a click stimulus

sounds of white noise or speech

oddball sound characteristics

unusual sound characteristics

masked noise sounds

unanticipated noise sounds

composite sounds

familiar sounds

recognizable sounds in reference to said patient

wherein a combination of any sound stimulus is generated according to a predetermined sequence.

72. (previously presented) The apparatus according to claim 71 wherein the predetermined sequence is determined by determination means incorporated within the apparatus.

73. (previously presented) The apparatus according to claim 72 including means for alerting an operator of the status of at least one sensor.

74. (canceled) Apparatus for acquiring physiological data from a living being for determining the state of sleep-consciousness of said living being comprising

a sensor for acquiring at least one continuous biosignal;

means for stimulating an evoked potential response signal in said being;

means for deriving at least one evoked potential response signal from said at least one continuous biosignal; and

means for deriving an index of consciousness from said at least one continuous biosignal and said evoked potential response signal.

75. (canceled) The apparatus of claim 73 wherein said at least one evoked potential response signal includes one or more of:

a first latency signal acquired from any of a cochlear, eighth nerve or eighth nerve compound action potential, said signal having a duration substantially of 0 to 5 ms;

a second fast latency signal acquired from any of an auditory brainstem response, wave I, wave II, wave III, wave IV, or wave V, said signal having a duration substantially of 2 to 20 ms;

a third early cortical or middle latency signal said signal including any of MLAEP, Na, Pa, TP41, Pb, Nb, said signal having a duration substantially of 10 to 100 m sec;

a fourth slow latency vertex audio evoked potential signal including any of P1, N1, P2, N2 having a duration substantially of 50 to 300 ms; and

fifth contingent potential processing signal (PCP), including any one of or a combination of mismatched negativity, Nd, N2b, P3a, P3b, N400, or P600.

76. (canceled) Apparatus for acquiring physiological data from a living being for determining the state of sleep-consciousness of said living being comprising:

a sensor acquiring at least a first continuous biosignal;

means for stimulating at least one evoked potential response signal in said first continuous biosignal;

means for deriving at least one evoked potential response signal from said first continuous biosignal;

means for transforming said first continuous biosignal according to a weighting calculation according to a mediation process;

means for transforming said at least one evoked potential response signal according to said weighting calculation; and

means for calculating an index from said transformed first continuous biosignal and said transformed evoked potential response signal.

77. (canceled) The apparatus of claim 76 wherein said at least one evoked potential response signal includes one or more of:

a first latency signal acquired from any of a cochlear, eighth nerve or eighth nerve compound action potential, said biosignal having a duration substantially of 0 to 5 ms;

a second fast latency signal acquired from any of an auditory brainstem response, wave I, wave II, wave III, wave IV, or wave V, said signal having a duration substantially of 2 to 20 ms;

a third early cortical or middle latency signal said signal including any of MLAEP, Na, Pa, TP41, Pb, Nb, said biosignal having a duration substantially of 10 to 100 m sec;

a fourth slow latency vertex audio evoked potential signal including any of P1, N1, P2, N2 having a duration substantially of 50 to 300 ms; and

a fifth mismatched negativity processing biosignal including any of Nd, N2b, P3a, P3b, N400, or P600.

78. (new) A method for acquiring, characterising and classifying biosignals from a living being for determining the state of consciousness of said being comprising:

acquiring at least one continuous biosignal;

stimulating an evoked potential response signal in said being;

deriving at least one evoked potential response signal from said at least one continuous biosignal;

deriving a first index of consciousness from said continuous biosignal;

deriving a second index of consciousness from said evoked potential response signal; and

classifying said indices as being representative of entering or leaving consciousness according to a weighting process.

79. (new) A method for acquiring, characterising and classifying biosignals from a living being for determining the state of consciousness of said being, comprising:

acquiring at least a first continuous biosignal;

stimulating at least one evoked potential response signal in said first continuous biosignal;

deriving at least one evoked potential response signal from said first continuous biosignal;

transforming said first continuous biosignal according to a weighting calculation according to a mediation process;

transforming said at least one evoked potential response signal according to said weighting calculation; and

calculating an index from said transformed first continuous biosignal and said transformed evoked potential response signal.